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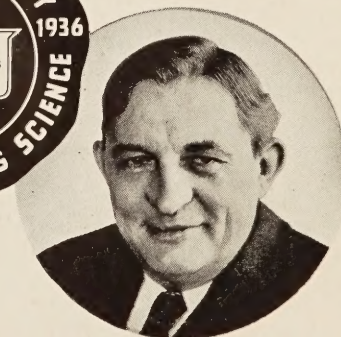
# *Air Conditioning and Automatic Heating for The Home*

*by*

WILLIS H.

# Carrier

ON THE 25TH ANNIVERSARY OF HIS ESTABLISHMENT OF THE ART



*See Scoops*

MASON ENGINEERING CORP.

898 Norman Street  
BRIDGEPORT, CONN.

TEL. 4-8292



# CARRIER HOME

## TEN YEARS IN MANY PRETENTIOUS AMERICAN MANSIONS

During the past ten years the Carrier Home Weathermaker has been bringing the complete advantages of air conditioning to hundreds of the more pretentious homes that demand the most dependable heating equipment for luxurious comfort. Installed costs averaged over \$2500.

Carrier Engineers have designed the Carrier Home Air Conditioner, embodying the same dependability, efficiency, freedom from attention, quietness, long life, and complete control over the air conditions, but with refinements in design to produce low-cost air conditioning in moderate sized homes.

Now, on the 25th Anniversary of his establishment of the art of air conditioning, the Carrier Corporation offers you Willis H. Carrier's latest contribution to the art . . . The Carrier Home Air Conditioner and Carrier Home Furnace (for oil or gas) . . . based on the experience obtained from more than 30 years of continuous attention to the problems of air conditioning. This accomplishment, embodying the inherent features of the former deluxe model, is ready for homes, existing and new, at a startling new low cost for installation and operation.

## CARRIER DEALER SERVICE

Complete application and installation training is supplied to all Carrier dealers. Each dealer has a competent engineer, qualified to recommend the appropriate units from the complete line. Each dealer also follows Carrier standards for installation. Architects may therefore call on their respective Carrier dealers for consultation regarding the choice of this new and complete line for home air conditioning and automatic heating.

## CARRIER HOME AIR CONDITIONING

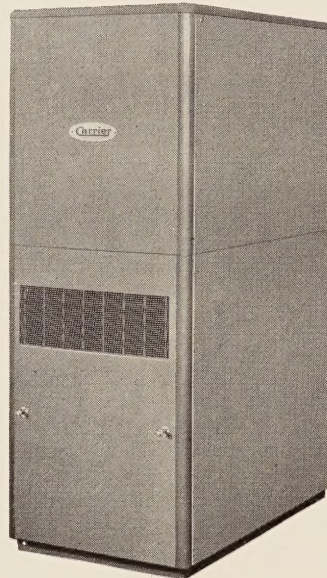
The Carrier Home Air Conditioner is a central plant designed primarily for installation in residences. It is flexible in design and is adaptable for use with either gas or oil fuel and combines the functions of heating, humidifying, filtering, distribution of the air and controlling the condition of the air within the building. The design also provides for the inclusion of a choice of heaters for domestic hot water. Cooling equipment can also be added for summer air conditioning. This unit is complete in every detail, compactly assembled within a cabinet designed to occupy a minimum amount of floor space, yet produce maximum satisfaction.

## SIZES

Two sizes of Carrier Home Air Conditioners.  
Two sizes of Carrier Home Furnaces (for oil and gas).  
Five sizes of Carrier Oil Burners which can be equipped with various nozzles for various capacities.

## COMBINATIONS

1. Carrier Home Air Conditioner with top or side duct connections complete with furnace unit, for either oil or gas.
2. Carrier Home Air Conditioning Units only, with side duct connections, for homes already equipped with steam or hot water boilers. No limitation is placed on existing steam boilers except that the water line must not be too high to prevent satisfactory return of condensate to the boiler.
3. Carrier Home Furnace only, equipped with oil or gas burner.
4. Carrier Oil Burner only, for use with existing boilers.



Although the Carrier Home Air Conditioner is a central plant requiring a duct system for the distribution of the air, it is possible to subdivide the house into air conditioned space and heated space. The "split" system permits the heating by direct radiation of garages, baths, and kitchens, which, for obvious reasons, do not require air conditioning. Whole wings of houses may be

heated by direct radiation with separate thermostatic control. Also the idea of zone control applies when more than one air conditioning unit is supplied by a single boiler, as well as to the "split" system. Such use of multiple air conditioners frequently is preferred, when, for reasons of construction, superior control, and expense, one large air conditioner is impracticable.

The overall heating efficiency of 80% is unusually high for residential furnaces.

## CAPACITIES

### HOME AIR CONDITIONER

Size	Cfm	Btu per Hour
59F2	560 to 850	54,000 to 74,000
59F4	1000 to 1600	100,000 to 140,000

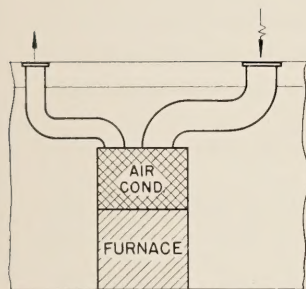
### HOME FURNACE

Size	Btu per Hour		Equiv. Sq. Ft. Direct Radiation	
	Oil	Gas	Steam	Water
59F2	120,000 to 190,000	200,000	500 to 790	800 to 1260
59F4	190,000 to 323,000	260,000	790 to 1350	1260 to 2160

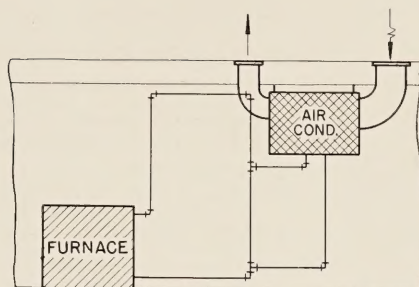


# AIR CONDITIONER

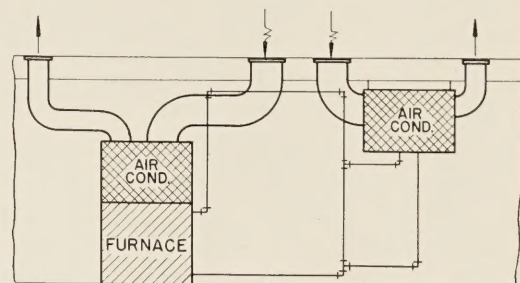
## TYPICAL APPLICATIONS



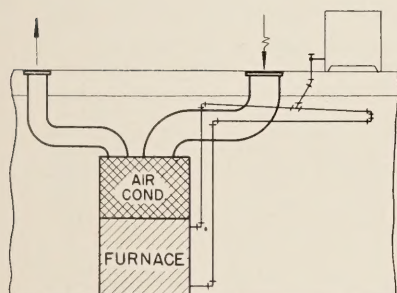
**AIR CONDITIONING**  
Carrier Home Air Conditioner



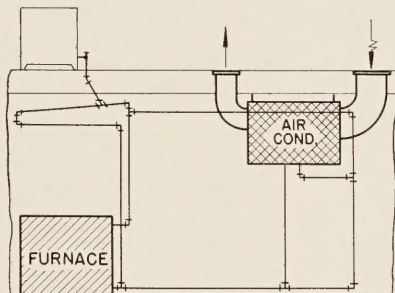
**AIR CONDITIONING**  
Carrier Home Furnace  
Remote Carrier Home Air Conditioning Unit



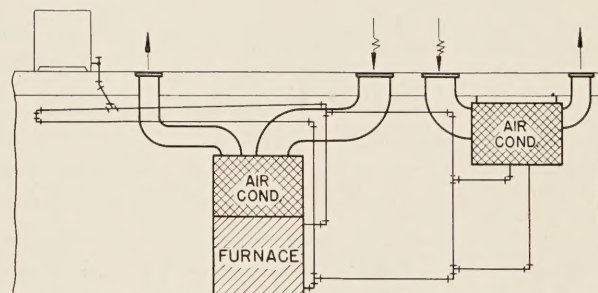
**AIR CONDITIONING**  
Carrier Home Air Conditioner  
Remote Carrier Home Air Conditioning Unit



**SPLIT SYSTEM**  
Carrier Home Air Conditioner  
with Part Radiation



**SPLIT SYSTEM**  
Carrier Home Furnace  
Carrier Home Air Conditioning Unit  
and Part Radiation



**SPLIT SYSTEM**  
Carrier Home Air Conditioner  
Remote Carrier Home Air Conditioning Unit  
and Part Radiation

### OPERATION CYCLE WITH STANDARD CONTROL

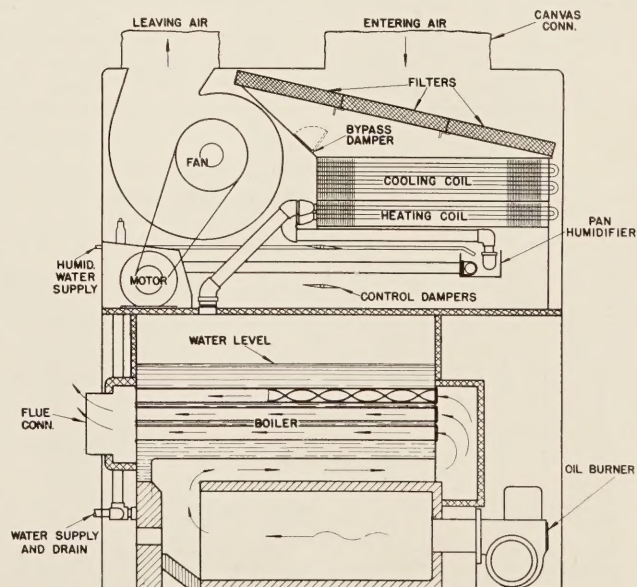
Return air is drawn from rooms above through a duct connected to the unit as "entering" air, shown in diagram (right). Air passes through filters, through cooling and heating coils, next through humidifier chamber, and enters fan. It is then discharged into ducts and distributed to the rooms.

The oil or gas burner supplies heat which is transmitted to the heating coil in the form of steam or hot water. The amount of heat delivered to the rooms is controlled by a thermostat which actuates the fuel burner. The operation of the fan which runs only when heat is required by the building, is controlled by the heating coil temperature. The humidifier is controlled by a snap switch or hygrometer preventing circulation of cold air.

In summertime, dehumidification and cooling by the cooling coil are controlled by action of a thermostat on the refrigeration system.

### WITH MODULATING CONTROL

To obtain continuous warm air circulation during the heating season without producing drafts, Carrier offers a modulated by-passing system. The modulating thermostat operates a damper motor which actuates dampers to regulate air temperature and circulation. The damper motor through an auxiliary switch controls the fuel burner. This system gives the ultimate in close temperature control.





# CARRIER HOME

## SPECIFICATIONS

**STANDARD UNIT:** Includes burner and plain room thermostat and stack switch. Boiler with safety devices, Air Conditioner with humidifier and water solenoid valve, strainer and regulator, heating coil and air vent, fan switch, main switch and auxiliary air circulation switch, controls, transformer, internal piping and wiring, acoustic air outlet elbows. Motors for 110-volt, 60 cycle, single phase. Does not include modulating thermostatic control, domestic water heater or cooling coil.

**ASSEMBLY.** Complete Air Conditioner sectionalized into two major parts; air conditioning unit and furnace, thus facilitating handling, erection, and location. Air conditioning unit can be furnished for either top or side duct connections. Furnace can be furnished with either oil burner or gas burner.

**CASING.** Air conditioning unit casing is constructed of 18-ga. steel with baked crinkle enamel finish. Removable panel for entire side provides access to all internal parts including fan, motor, drive, heating coil, humidifier, spray and filters.

Furnace casing matches the air conditioner in material, design and finish. Removal panel provides access to all internal parts, including boiler, burner and all safety controls and fittings.

**FAN.** Forward curved, slow speed, blade type 15" diameter wheels, dynamically and statically balanced on accurately ground and polished shaft. Fan scrolls specially designed for quietness.

**MOTOR.** Selected and designed for quietness and endurance. Motor for the air conditioner is resiliently mounted capacitor start, induction run 110 volt, single phase, 60 cycle.

**DRIVE.** V-belt drive specially designed for quiet operation.

**FAN BEARINGS.** Sleeve bearing, wick oiled type, insuring long, quiet operation.

**HEATING COIL.** Special extended surface, fin type coil, horizontally mounted. Two rows, 8 fins per inch— $\frac{3}{8}$ " diameter tubes, non-ferrous. Tubes connected to headers providing for even steam distribution. Space provided above heating coil for the cooling coil.

**AIR VALVE.** Quick vent air valve on the return header of the steam coil prevents air binding.

**HUMIDIFIER.** Evaporating pan type with adjustable depth for capacity variation. Accessible for cleaning. Complete with strainer, solenoid valve for remote control, drip valve and water pressure regulator.

**FILTERS.** Throw-away type, large area to last entire season. Utilize impact principle on viscous, odorless wax. Have slow increase of resistance as dirt accumulates. Replaceable through removable panel on air conditioning unit.

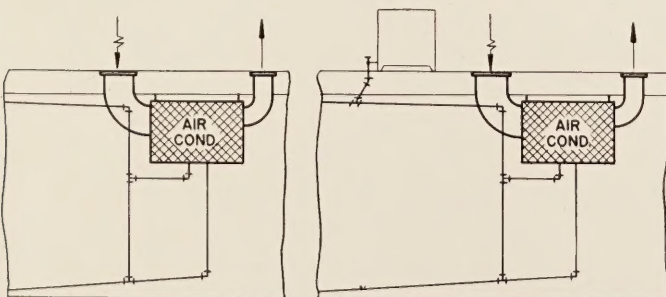
**BY-PASS DAMPER.** Standard louvre type dampers are used for modulating control. Two dampers—one is by-pass damper, the other obstructs flow through heating coil—are operated by modulating damper motor.

**ACOUSTIC ELBOWS.** Outlet elbows treated for sound absorption with fireproof material. Flexible duct connections prevent transmission of vibration.

### COOLING RATINGS FOR HOME AIR CONDITIONER

Room Temperature (°F)	Room Relative Humidity (%)	Refrigerant Temperature (°F)	Cooling Capacity			
			59F2		59F4	
			Btu/hr.	Tons	Btu/hr.	Tons
80	51	50	34,700	2.89	69,400	5.78
80	48	47	38,900	3.24	77,800	6.48
80	45	44	43,300	3.6	86,600	7.20
80	42	41	47,600	3.97	95,200	7.94

### TYPICAL APPLICATION OF AIR CONDITIONING UNIT ONLY



Air conditioning supply of steam by remote carrier

Split system supply of steam by remote Carrier home air conditioning unit and part radiation

### AIR CONDITIONER CONTROLS (External)

**STANDARD THERMOSTAT**—anticipating type for automatic control of furnace.

**DAY-NIGHT THERMOSTAT**—anticipating type with separate day and night control.

**MODULATING THERMOSTAT**—provides controlled, continuous circulation.

**MODULATING DAY-NIGHT THERMOSTAT**—gives continuous circulation during day and intermittent at night.

**HUMIDISTAT**—sensitive hair element insures accurate control.

**ELECTRIC CLOCK SWITCH**—operates circuits for night-day thermostats.

### CONNECTIONS

**FOR GAS FIRED UNIT**—Gas and water supply, drain, gas pressure regulator vent, electrical service connection and thermostat control wiring.

**FOR OIL FIRED UNIT**—Oil and water supply, drain, electrical service connection, and thermostat control wiring.

The sheet metal connections consist of supply and return ducts and flue pipe.

### SUMMER AIR CONDITIONING

Conditioning for comfort in summer is obtained by inserting a cooling coil in the place provided above the heating coil. The air is cooled and dehumidified by passing over this coil. A refrigeration compressor is connected to the coil. Freon is the refrigerant used. Coils for cold water circulation are also available.

The equipment necessary to add to the Carrier Home Air Conditioner in order to obtain summer cooling and dehumidification consists of:

1. Cooling coil.
2. Supply and return refrigerant lines, refrigerant solenoid valve and thermostat control.
3. Freon refrigeration compressor for connection to cooling coil.
4. Controls are separate from those used for the Furnace.

For Furnace Controls see pages 6 and 7.

### CARRIER HOME FURNACE (for Oil)

Type and Size	59F2	59F4
Btu per Hour	80 to 120-lb. Oil Press. 120,000 to 190,000	190,000 to 323,000
Gross Equiv. Sq. ft. } Steam	80 to 120-lb. Oil Press. 500 to 790	790 to 1,350
Direct Radiation } Hot Water	80 to 120-lb. Oil Press. 800 to 1,260	1,260 to 2,160
Oil Rate in Gal. per Hour at Nozzle	80 to 120-lb. Oil Press. 1.10 to 1.73	1.73 to 2.88
Height of Water Level — In.	33 $\frac{1}{2}$	33 $\frac{1}{2}$
Flue Size — In.	9	10
Water Holding Capacity (Gal.)	Steam 26	36.5
	Hot Water 43.5	63
Domestic Hot Water Heater Capacity	Tank Type	1.88 Sq. ft. for use with 40 gal. Tank
		2.82 Sq. ft. for use with 66 gal. Tank
	3.76 Sq. ft. for use with 100 gal. Tank	
	Tankless Type 12 Sq. ft. (2.0 gal. per min. heated 100° F.)	

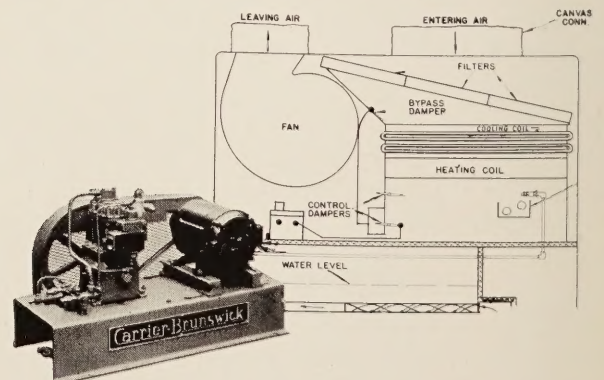
1. Ratings based on commercial No. 3 Fuel Oil.
2. All Efficiencies are based on 10% Carbon Dioxide (CO<sub>2</sub>).
3. Efficiency varies between 78% to 81%.
4. Decrease Boiler capacities 17% for 50 cycle Oil Burners.

### AIR CONDITIONING UNIT — HEATING†

Type and Size	59F2	59F4
Fan Speed in Rpm	385 to 570	385 to 600
Air Capacity in Cfm at 70°	560 to 850	1,000 to 1,600
Air Capacity in Cfm at Final Temp.	660 to 980	1,170 to 1,840
Output in Btu per Hour	54,000 to 74,000	100,000 to 140,000
External Static Pressure Available (In. Water)	.06 to .15	.06 to .15
Temperature of Air at Fan Discharge (70° Entering Air)	162° to 150°	162° to 150°
Motor Horsepower	$\frac{1}{4}$	$\frac{1}{2}$
Water Evaporated	Lb. per hr. 3	6
	Gal. per hr. .36	.72

Based on 2-lb. Steam or 220° Hot Water. Forced circulation and 220° water necessary with hot water systems, to maintain capacities.

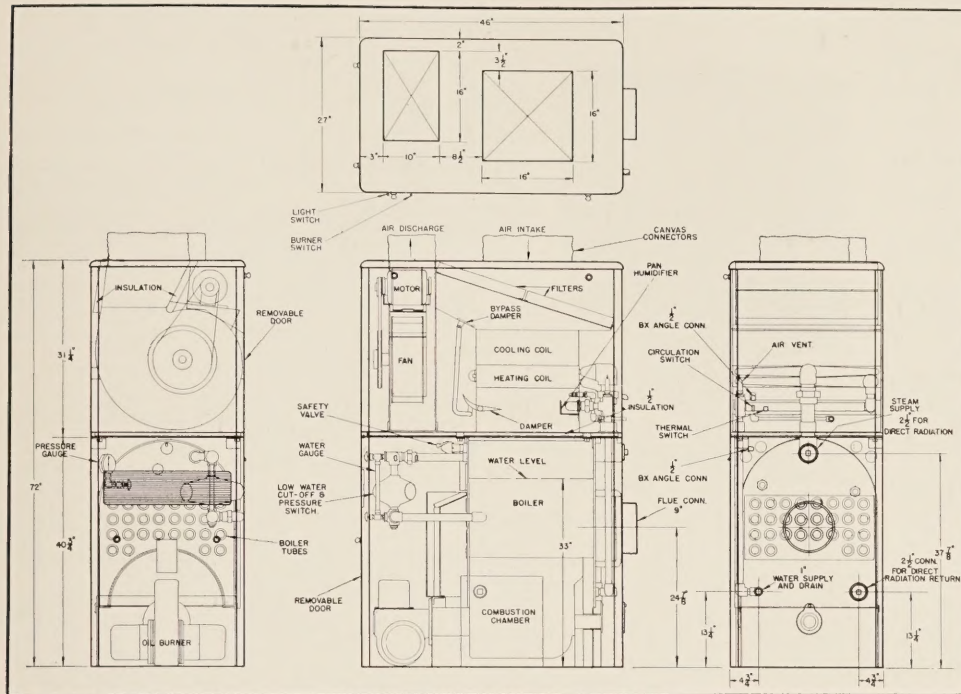
† When cooling coil is used, decrease heating capacities 6% and decrease air quantities 9% for same motor and same fan speeds.



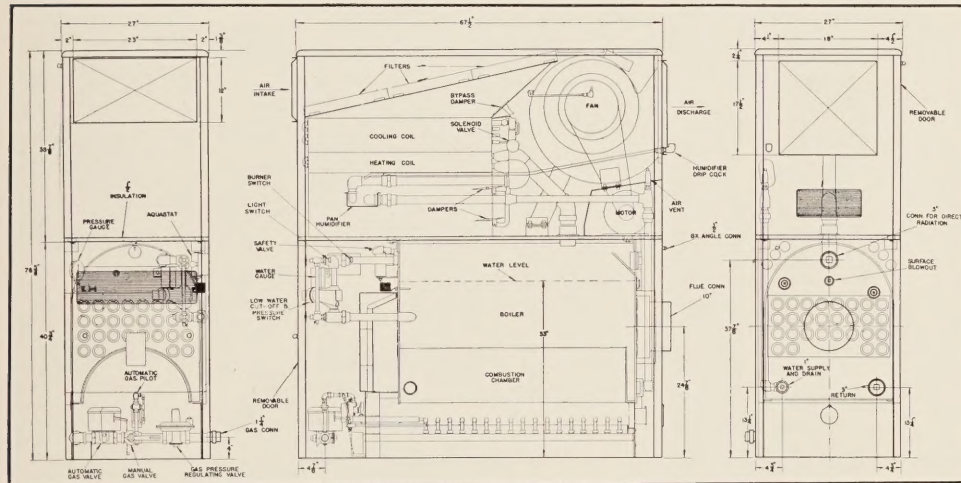


# AIR CONDITIONER

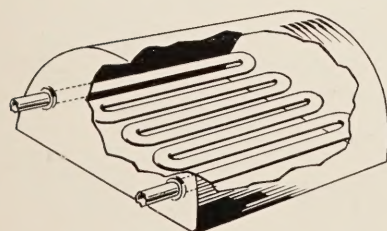
## DIMENSIONS



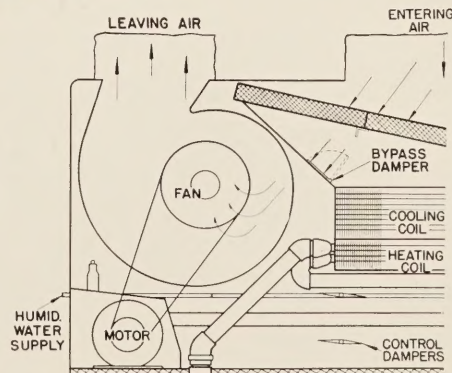
**TYPE 59F2 WITH HOME FURNACE (FOR OIL)**  
ALSO AVAILABLE FOR GAS



**TYPE 59F4 WITH HOME FURNACE (FOR GAS)**  
ALSO AVAILABLE FOR OIL

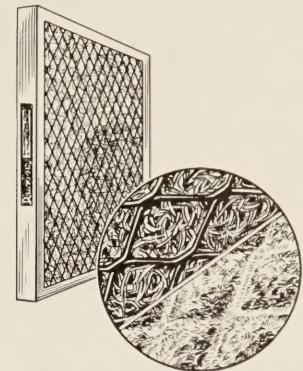


**WATER HEATER**

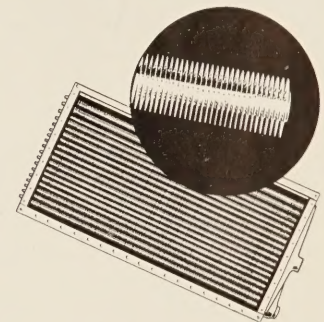


**BY-PASS OF AIR**

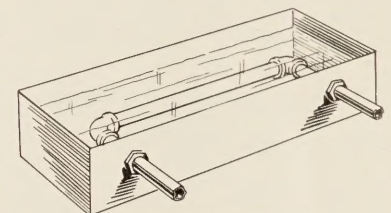
## FEATURES



**AMPLE FILTERS**



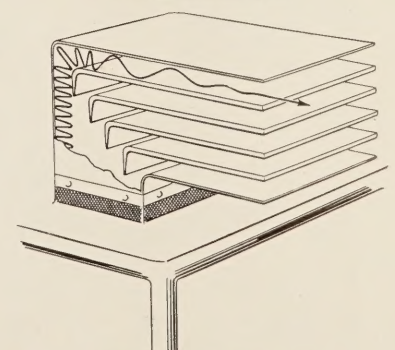
**AEROFIN HEATING TUBES**



**SIMPLIFIED HUMIDIFIER**



**SLOW SPEED FAN**



**FLEXIBLE DUCTS AND ACOUSTICIZED ELBOWS**



# CARRIER HOME FURNACE

## (FOR OIL)

This automatic heating unit achieves complete combustion without soot or oily vapor deposits settling on furnishings or neighbors' houses.

Assures utmost reliability of each part separately and in relation to all other parts.

Utilizes every drop of oil . . . transfers and distributes heat with greater economy.

Built of an enduring assembly of parts that will continue their proper functioning for long life.

Ingenious tube construction produces maximum heat efficiency.

Minimizes heat loss up chimney.

Special design boiler to meet Carrier standard.

Attractive neutral finish to blend with surroundings.

Booster pump assures immediate delivery of hot water to the radiators.

**CARRIER HOME FURNACE** (for oil): includes burner, stack control and plain room thermostat, boiler with all safety devices and refractories, for 110-volt, 60 cycle, 1 phase; domestic water heater and control may be included.

**BOILER.** Special boiler designed for maximum efficiency is fully insulated and has low water line. Boiler is constructed from open hearth flange quality steel. Can be equipped for either oil or gas burner. Replacement of oil with gas or vice versa is easily accomplished with little



alteration. When used with oil, tunnel firing insures perfect combustion. The boiler is equipped with sight gauge, safety valve, water level test cocks, drain, low water cut-off and pressure switch, fusible plug, surface blow-out and water blow-off.

**BOILER CONTROLS.** Include low water cut-off and pressure switch for steam or temperature limit control for hot water.

**DRAIN CONNECTIONS.**  $\frac{3}{4}$ " drain connections provided from air conditioner pan.

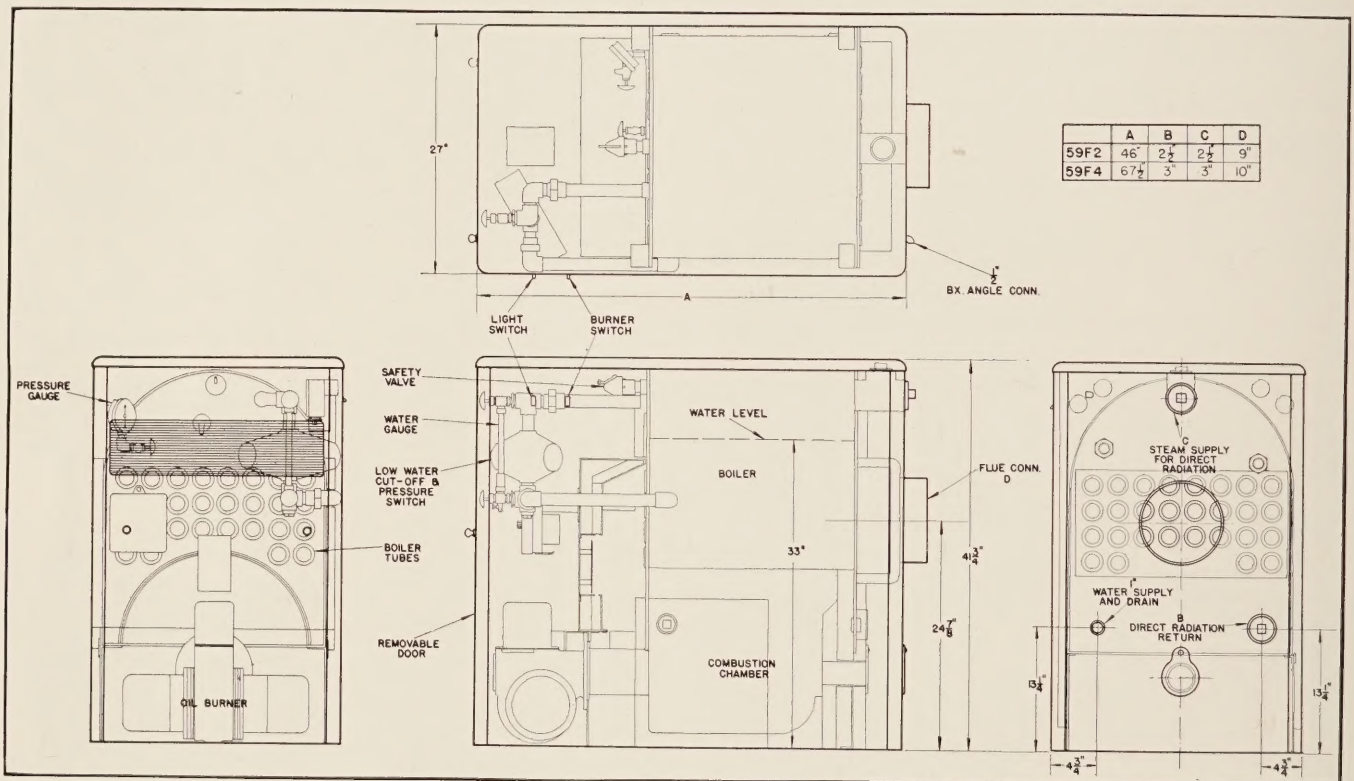
**ELECTRICAL CONNECTIONS:** All wiring on unit is in armored cable. Most rigid code requirements observed in electrical parts.

**DOMESTIC WATER HEATER.** Boiler can be equipped with tank or tankless type. Three tank type heaters available having 40, 60 and 80 gallons capacity in three hours. The tankless type maintains capacity of 2 gals. per minute and the use of a storage tank is not necessary. Domestic hot water control can be used for control of water temperature.

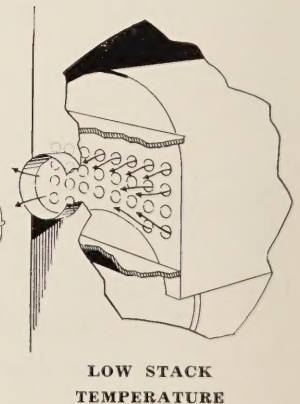
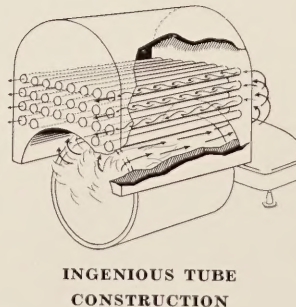
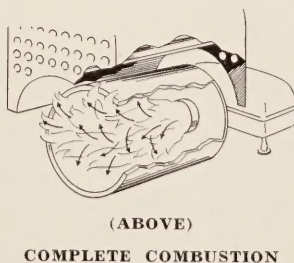
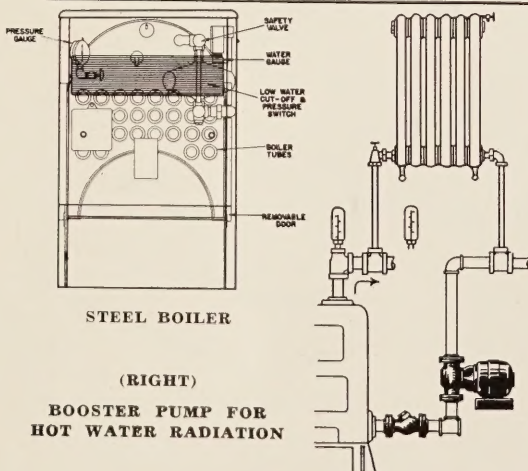
**BALANCED DRAFT CONTROL.** Minimizes stack draft variations and conserves heat.

**COMBUSTION CONTROL.** Controls combustion of oil for safety and economy.

**COMBUSTION CHAMBER.** High grade, cast refractory tunnel design combustion chamber maintains proper combustion temperature within the chamber.

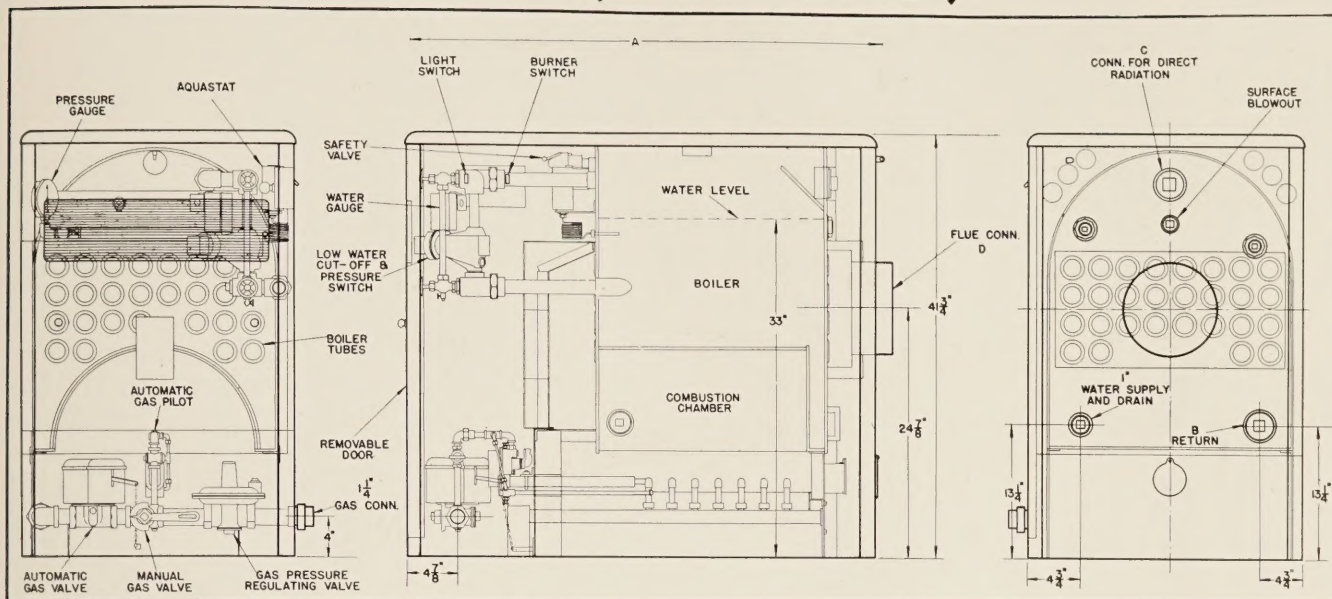


## FEATURES





# CARRIER HOME FURNACE (FOR GAS)



	59F2	59F4
A	46"	67½"
B	2½"	3"
C	2½"	3"
D	9"	10"

The Carrier Home Furnace (for gas) is the result of 10 years' development of the Carrier Home Weathermaker. Approved by American Gas Association.

**ABSOLUTE QUIET**—The Carrier Home Furnace is on only when heat is required. When not needed, it shuts down silently and automatically.

**DEPENDABILITY**—Burner, boiler and automatic controls work as one system. Manual setting provides heat even when electrical failure may temporarily interrupt electrical controls. Controls assure dependable performance and automatic operation of burner and boiler and unfailing protection of system. In an emergency, gas is automatically turned off by pilot.

**CLEANLINESS**—Complete combustion of the gas eliminates any possibility of odors or soot. After giving up their heat to the boiler water, the hot gases are exhausted to the chimney where they mix with the outside air and are not noticeable.

**SIMPLICITY**—There are no moving parts. Specially designed one-piece welded steel boiler and burner are planned as a unit. All parts are readily accessible for easy inspection and cleaning, if necessary.

**ECONOMY**—The Carrier Home Furnace (for gas) produces complete combustion... its boiler is designed to produce 80% efficiency in utilization of heat. With its special combustion chamber for gas, this unit wastes no fuel. The extensive heat absorbing area of the boiler and the spiral baffles utilize as much as practicable of the heat from combustion. Special insulation prevents unnecessary heat losses.

**APPEARANCE**—Finished in pleasing two-tone crinkle baked enamel, and of pleasing proportions, the new Carrier Home Furnace presents an attractive appearance. The neutral greens blend with other furnishings that may be a part of the basement living-room.

**GAS BURNER EQUIPMENT**—The Carrier Gas Burner utilizes the proven, scientifically correct and efficient Bunsen principle of burning gas. The burner mixes the correct amount of air with the gas and causes the mixture to break up into five thin streams by a specially designed, patented device. This device gives a five-pointed star appearance to the blue flame produced by the combustion of the gas. The burner is candle quiet and can not flash back when turned off.

Each Carrier gas burner produces about 4000 Btu. per hour at a given gas pressure. Adaptability to different gases is obtained by changing the orifice size in the burner and flexibility in capacity is obtained by varying the number of burners in an assembly.

The burner assembly is of welded one-piece, extra-heavy steel construction. It is sturdy and easy to handle. Every part of it is accessible for inspection, repair or cleaning when necessary. The burner assembly is so located in the boiler that it can be removed with facility and with the least disturbance of the other parts.

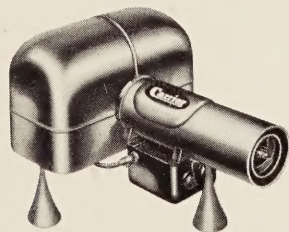
**GAS**—May be used with natural, manufactured or mixed gas.

**CONTROLS**—The controls are reliable and foolproof. Every precaution is taken to prevent the escape of unburned gas from the firebox. Even the pilot turns its own gas off when its flame goes out.

The draft diverter enables the burning of gas independent of stack conditions.

The other controls incorporated are gas pressure regulator, gas-electric safety pilot, electric shut-off valve, and hand type springback plug cock with appropriate controls depending on steam or hot water system.

## CARRIER OIL BURNER



**CARRIER OIL BURNER**—Gives maximum heat at minimum cost.

May be used in existing furnace.

Complete atomization... every drop of oil utilized.

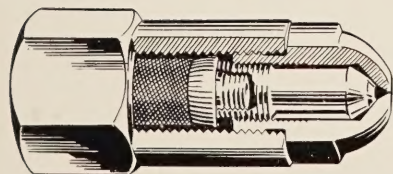
Air diffuser insures uniform mixing of air and oil for greater fuel economy.

Floating mounting for quiet operation.

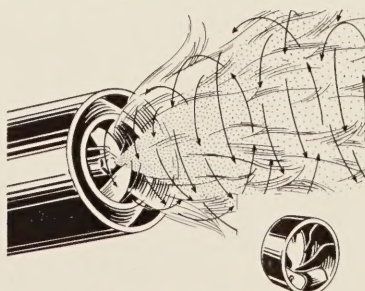
Is thoroughly automatic.

**OIL BURNER EQUIPMENT**—Consists of complete burner unit which includes pressure atomizing type burner, ignition system, oil filter, oil pump, blower for air supply and stack relay, for 110-volt, 60 cycle, 1 phase, with stack control.

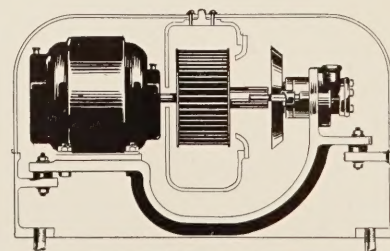
### FEATURES



COMPLETE ATOMIZATION



UNIFORM MIXING OF  
AIR AND OIL



FLOATING MOUNTING



# CARRIER HOME AIR CONDITIONER FOR SELECTED ROOMS

**AIR CONDITIONING UNIT**—Complete, includes casing with hanger bolts, filters, fans with diffusers, heating coil and air valve, humidifier with heater and drip cock, water strainer, pressure reducing valve, solenoid valve, drain pan, thermal fan control, safety thermal main switch, air circulation switch, transformer and fan motor for 110 volt, 60 cycle, single phase.

Connections to the unit consist of a steam supply and return, water supply to the humidifier, humidifier overflow and dehumidifier drain, and electrical service connection to control box. Sheet metal connections consist of supply and return ducts.

The Carrier Home Air Conditioning Unit (Type 59H) extends the scope of domestic air conditioning to:

1. **HOMES ALREADY EQUIPPED WITH BOILERS.** No limitation is placed to existing boilers except that the water line must not be too high to prevent satisfactory return of condensate to the boiler.

By means of duct work, old houses may be provided with air conditioning in a given number of rooms.

2. **SUB-DIVISION OF THE HOUSE INTO AIR CONDITIONED SPACES AND HEATED SPACES.** The unit permits complete air conditioning in selected rooms of the house; and the heating by direct radiation of garage, baths and kitchens and other rooms, which for obvious reasons, do not require air conditioning.

3. **ZONING—MULTIPLE UNITS.** The idea of zoning extends also to the use of more than one unit supplied by a single boiler, as well as to the "split" system. The Type 59H unit can be used in conjunction with the larger 59F Air Conditioners for zone control. Such use of multiple units is frequently practical when construction costs and space limitations make the use of large units impracticable.

## COMBINATIONS

Humidifying Only	Heating, Humidifying and Cooling
Humidifying	Humidifying
Tempering	Heating
Filtering	Filtering
Circulating	Circulating
Heating and Humidifying	Cooling
Humidifying	Dehumidifying
Heating	Dehumidifying and Cooling
Filtering	Filtering
Circulating	Circulating
	Cooling
	Dehumidifying

Light in weight... quickly and easily installed. Suspended from the ceiling, it takes up no floor space. May be used in homes now equipped with hot water or steam heating systems.

Incorporates same superior mechanical features of the larger Carrier Home Air Conditioning Unit except by-passing feature. Attractive neutral finish blends with surroundings. Carrier automatic controls assure continuous comfort and economy of operation.

## SPECIFICATIONS

**CASING**—Casing is constructed of 18 gauge steel finished with two tone green baked crinkle enamel. Removable panels on both sides provide access to all internal parts including fan motor, heating coil, humidifier and filters.

**FANS**—Two fans of silent multi-blade forward curve type, made of aluminum and mounted on double shaft extension of fan motor. Scrolls are of heavy construction with special cut-off to insure quiet operation.

**FAN MOTOR**—1/30 hp, 870 rpm, 110 volt, single phase, 60 cycle, constant speed motor is standard equipment. Motor is furnished with resilient mounting for quiet operation.

**HEATING COIL**—Plate fin type coil vertically mounted. Two rows 7 fins per inch 1/2" diameter tubes, non-ferrous. Space is provided for future installation of cooling coil.

**AIR VALVE.** Quick vent air valve on the return header of the steam coil is furnished as standard for steam.

**HUMIDIFIER.** Evaporative pan type with adjustable depth for capacity variation.

**FILTERS.** Throw-away type. Utilize impact principle on viscous odorless wax. Have slow increase of resistance as dirt accumulates. Replaceable through removable panel on Air Conditioner two 10 x 20 x 2".

**ELECTRICAL CONNECTIONS.** All wiring on unit is in armored cable. Most rigid code requirements observed in electrical parts.

## RATINGS AND CAPACITIES

HEATING AND TEMPERING  
Based on 2-lb. Steam or 220° Hot Water\*

Type	Heating	Tempering
Fan Speed in rpm.....	870	870
Air Capacity in cfm at 70° F.....	450	550
Air Capacity in cfm at Final Temperature.....	530	610
Output in Btu per Hr.....	48700	35500
External Static Pressure available in In. Water.....	.06	.06
Temperature of Air at Discharge in °F.....	170	130
Motor Horsepower.....	1/30	1/30
Water Evaporated (Lb. per Hr.....)	8.4	8.4
Gal. per Hr.....	1	1

\*Forced circulation and 220° water necessary with hot water systems, to maintain capacities.

The above ratings are for 60 cycle current

## SUMMER COOLING

Conditioning for comfort in summer is obtained by inserting a cooling coil in the space provided. The air is cooled and dehumidified by passing over this coil. A refrigeration compressor is connected to the coil. Freon is the refrigerant used in this direct expansion system. Coils for cold water circulation are also available.

In order to obtain summer cooling and dehumidifying with the 59H unit, it is necessary to add the following:

1. Cooling coil.
2. Supply and return refrigerant lines with required valves for control.
3. Refrigeration compressor, Freon refrigerant, for connection to cooling coil.
4. Controls, which are separate from the controls used for the heating function.

## OPERATING CYCLE

Return air is drawn from the building through a duct connected to the air intake of the Conditioner. It passes through the filters, enters the fan and is discharged through the heating coil into the supply duct, which distributes it to the various rooms. As it passes the humidifier, the air picks up water vapor. Heat for the vaporization of water is supplied by a steam coil which is an integral part of the humidifier. Water is supplied to the humidifier by means of a drip cock, which is manually adjusted.

